

CLAIMS

1. Heat exchanger (2) comprising an exchanger block or  
a number of aligned exchanger blocks (20), where  
5 fluids are circulated in a heat-exchange  
relationship, at least one face of each block  
comprising inlet openings (204) for at least one of  
the fluids, the inlet openings in the same face of  
each block for this fluid being in communication  
10 with the interior space of the same fluid supply  
box (21) which runs alongside the said face  
thereof, and which communicates with at least one  
analogous box of an adjacent block if there is one,  
to form a fluid supply line, the exchanger being  
15 characterized in that the fluid supply line  
contains at least one grating (30) arranged across  
the line and having through-perforations (301) and  
solid parts (302) which are distributed in such a  
way as to create, at locations on the surface of  
20 the grating, pressure drops which are such that the  
flow velocities of the fluid in the inlet openings  
downstream of the grating (30) have similar values,  
and the distribution of the fluid in the inlet  
openings (204) and in the supply line downstream of  
25 the grating (30) and upstream in the vicinity  
thereof, is approximately uniform.
2. Heat exchanger according to Claim 1, characterized  
in that the grating (30) has perforations  
30 distributed non-uniformly over its surface.
3. Heat exchanger according to Claim 2, characterized  
in that the grating (30) has through-perforations  
35 (301) with a degree of perforation on its surface  
which varies over its surface approximately in the  
opposite direction to the value of the flow  
velocities at the same locations in the absence of  
the grating.

4. Heat exchanger according to Claim 3, characterized in that the degree of perforation varies over the surface of the grating (30) substantially in inverse proportion to the flow velocities at the same locations in the absence of the grating.  
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5. Heat exchanger according to any one of Claims 2 to 4, characterized in that the grating (30) has several juxtaposed regions each having one same degree of perforation on their surfaces, and respective degrees of perforation that differ from one region to an adjacent region.  
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6. Heat exchanger according to any one of Claims 2 to 5, characterized in that the grating (30) has at least one region consisting of a notch or a cut-out.  
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7. Heat exchanger according to any one of Claims 2 to 6, characterized in that the grating (30) has at least one continuous region with no perforations representing a substantial fraction of its area.  
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8. Heat exchanger according to any one of Claims 1 to 7, characterized in that the grating (30) extends over a cross section of the line.  
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9. Heat exchanger according to any one of Claims 1 to 8, characterized in that the grating (30) extends over a cross section of the line at right angles to its axis.  
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10. Heat exchanger according to any one of Claims 1 to 8, characterized in that the grating (30) is arranged at an angle in the supply line.  
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11. Heat exchanger according to any one of Claims 1 to 10, characterized in that the grating (30) extends

over the entire area of a cross section of the line.

- 5 12. Heat exchanger according to any one of Claims 1 to 10, characterized in that the grating (30) extends over an area smaller than a cross section of the line.
- 10 13. Heat exchanger according to any one of Claims 1 to 12, comprising a supply line having a tapping (211) exhibiting a circular cross section at right angles to its axis and connected to supply boxes (21) having a semicircular cross section at right angles to their axis, characterized in that the grating
- 15 (30) is arranged in a supply box near the tapping.
- 20 14. Heat exchanger according to any one of Claims 1 to 13, characterized in that the supply line contains several gratings (30).
- 25 15. Heat exchanger according to any one of Claims 1 to 14, comprising two supply lines, characterized in that each line contains at least one grating (30).
- 30 16. Heat exchanger according to any one of Claims 1 to 15, characterized in that the said fluid circulating through the fluid supply line is in the gaseous state.
- 35 17. Reboiler-condenser, characterized in that it comprises one heat exchanger according to any one of claims 1 to 16.
18. Reboiler-condenser of an air separator unit, characterized in that it comprises at least one heat exchanger according to any one of Claims 1 to 16.